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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,888	09/12/2003	Mohamad El-Batal	LSI.81US01 (03-1078)	6950
24319	7590	11/01/2005	EXAMINER	
LSI LOGIC CORPORATION 1621 BARBER LANE MS: D-106 MILPITAS, CA 95035			CHERY, MARDOCHEE	
			ART UNIT	PAPER NUMBER
			2188	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/660,888

Applicant(s)

EL-BATAL ET AL.

Examiner

Mardochee Chery

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6-12, 14-20, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rezaul (6,282,670) in view of Burns (6,088,694).

As per claim 1, Rezaul discloses a method for recovering data in a redundant data storage system having a plurality of data storage units, said method comprising: storing said data on said plurality of data storage units according to a redundant data storage method [col.2, lines 18-29]; removing one of said plurality of data storage units [col.4, lines 33-42]; while said one of said plurality of data storage units is removed, changing a portion of said data on the remainder of said plurality of data storage units and [col.4, lines 36-43]; replacing said one of said plurality of data storage units [col.1, line 66 to col.2, line 6]; and updating said one of said plurality of data storage units [col.2, lines 18-27].

However, Rezaul does not specifically teach storing a record of said changes in a delta file and updating those portions of data recorded in said delta file as required by the claim.

Burns discloses storing a record of changes in a delta file and updating portions of data recorded in the delta file [col.5, line 61 to col.6, line 5] in order to achieve efficient and cost effective backup of data (col.6, lines 3-5).

Since the technology for implementing a storage recovery system with storing a record of changes in a delta file and updating portions of data recorded in the delta file was well known as evidenced by Burns, an artisan would have been motivated to implement this feature in the system of Rezaul in order to achieve efficient and cost effective backup of data. Thus, it would have been obvious to one of ordinary skill in the art at the time of invention by Applicant to modify the system of Rezaul to include storing a record of changes in a delta file and updating portions of data recorded in the delta file because this would have achieved efficient and cost effective backup of data (col.6, lines 3-5) as taught by Burns.

As per claims 9 and 17, the rationale in the rejection of claim 1 is herein incorporated. Rezaul further discloses a redundant data storage system capable of fast restoration of serviced data storage units comprising: a plurality of data storage units [col.4, lines 33-44]; and a controller that stores data on said plurality of data storage units according to a redundant data storage method, changes a portion of said data after taking one of said plurality of said data storage units off line, stores a record of the changes in a delta log that are made to the remainder of the plurality of said data

storage units, brings said one of said plurality of said data storage units online, and updates said one of said plurality of said data storage units by updating those portions of data recorded in said delta file [Fig.1, controller 120; col.17, lines 46-60].

As per claims 2, 10 and 18, Rezaul discloses the redundant data storage method comprises RAID 1 [col.1, line 66 to col.2, line 15].

As per claims 3, 11 and 19, Rezaul discloses redundant data storage method comprises RAID 3 [col.2, lines 43-57].

As per claims 4, 12 and 20, Rezaul discloses redundant data storage method comprises RAID 5 [col.3, lines 30-45].

As per claims 6, 14 and 22, Rezaul discloses the one of said data storage units comprises a plurality of disk drives [Fig.1].

As per claims 7, 15 and 23, Burns discloses delta file comprises pointers to said portion of said data that is changed Fig.6].

As per claims 8, 16 and 24, Burns discloses the delta file comprises an updated version of the portion of the data that is changed [Fig.8].

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3. Claims 5, 13, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rezaul (6,282,670) in view of Burns (6,088,694) as applied to claims 1, 9, and 17 respectively, and further in view of McCabe (2002/0016827).

As per claims 5, 13 and 21, McCabe discloses the redundant data storage method comprises remotely mirroring the data [Fig.3; par.20] in order to provide better fault tolerance and/or disaster recovery (par.2).

Since the technology for implementing a storage recovery system with remote mirroring was well known as evidenced by McCabe, an artisan would have been motivated to implement this feature in the system of Rezaul and Burns in order to provide better fault tolerance and/or disaster recovery. Thus, it would have been obvious to one of ordinary skill in the art at the time of invention by Applicant to modify the system of Rezaul and Burns to include remote mirroring because this would have provided better fault tolerance and/or disaster recovery (par.2) as taught by McCabe.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lu	6,952,794
Gold et al.	6,785,786

5. When responding to the office action, Applicant is advised to clearly point out the patentable novelty that he or she thinks the claims present in view of the state of the art disclosed by references cited or the objections made. He or she must also show how the amendments avoid such references or objections. See 37 C.F.R. 1.111(c).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mardochee Chery whose telephone number is (571)272-4246. The examiner can normally be reached on 8:30A-5:00P.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Manonama Padmanabhan can be reached on (571)272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 28, 2005

Kevin L. Ellis
Primary Examiner

Kevin L. Ellis



Mardochee Chery
Examiner
AU2188